

NAME

smlisp – Small Lisp Implementation

SYNOPSIS

/usr/local/bin/smlisp [*configfile*]

DESCRIPTION

Small Lisp is a very small implementation of the LISP programming language. It has been written for teaching purposes at the School of Computing Science at Simon Fraser University. Small Lisp is based on McCarthy's original m-Lisp representation of LISP. However, the distribution contains also various utilities to translate m- to S-expressions, or the other way around.

The original Small Lisp package was distributed only with executables for the MS-DOS operating system. This Linux binary distribution was compiled from the Modula-3 source code using PM3, a Modula-3 implementation from the École Polytechnique de Montréal.

For the complete grammar of the language refer to *Symbolic Computing with LISP* (see details below) or the *Small Lisp Reference Manual* included in the distribution.

USAGE

[*configfile*] is an optional argument, and allows the user to read in additional Small Lisp programs with pre-defined functionals. The [*configfile*] should contain a list of all files to be read in, each file on a single line. If no configuration file is specified, the plain default of the Small Lisp language is invoked by the interpreter.

Several interpreter commands are available in the interactive mode. All start with a backslash on a single line. After invoking **smlisp**, the following interpreter commands can be used:

- /help** prints out some reminders about using the interpreter.
- /quit** stops the interpreter, returning control to the operating system.
- /read** *smlispfile* reads in the list of Small Lisp definitions in *smlispfile*, adding them to the current set.
- /reset** [*configfile*] clears all current definitions and optionally reads in a new configuration from *configfile*.
- /save** *filename* saves all the interactively entered definitions into *filename*.
- /show** *function-name* prints out the current function definition associated with *function-name*.
- /log** [*logfile*] closes any current log file and starts a new log on *logfile*, if specified.

IMPLEMENTATION LIMITS

A Small Lisp implementation may impose limits on the lengths of source lines, identifiers, and symbolic atom names and may also limit the range of representable numeric values.

This implementation limits the length of source lines to 254 characters. Consequently, identifiers and symbolic atom names are also limited to this length, but no further limits are imposed. The values of numeric atoms are restricted to the interval [-2147483648, 2147483647]. Outside this range, an arithmetic underflow or overflow occurs. For example:

```
minus[-2147483648; 1] --> 2147483647,
```

```
plus[2147483647; 1] --> -2147483648.
```

UTILITY PROGRAMS

Apart from the main executable **smlisp** several utilities are provided to manipulate Small Lisp programs in m- or S-Lisp representation:

prettysl

beautifies a program file containing Small Lisp functions and definitions. It may be invoked using the following syntax:

prettysl *file1* [*file2*].

The list of definitions is read from file1 and pretty-printed to file2, if specified, or to the standard output, otherwise.

slispify converts a Small Lisp program in m-Lisp form into its S-Lisp equivalent. It may be invoked using the following syntax:

slispify *file1* [*file2*].

The list of definitions is read from file1 and pretty-printed in S-Lisp form to file2, if specified, or to standard output, otherwise.

mlispify

converts a Small Lisp program in S-Lisp form back into its m-Lisp equivalent. It may be invoked using the following syntax:

mlispify *file1* [*file2*].

The list of definitions is read from file1 and pretty-printed in m-Lisp form to file2, if specified, or to standard output, otherwise.

REFERENCES

The definite reference on Small Lisp is

Robert D. Cameron and Anthony H. Dixon
Symbolic Computing with LISP
Prentice-Hall, Inc., 1992, ISBN 0-13-877846-9

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The Small Lisp web site is located at

<http://www.cs.sfu.ca/~cameron/smlisp/>

and the site for the Linux distribution at

<http://www.uv.es/~tung/smlisp/>

CONTACT

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